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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,380	12/27/2004	Refael Aharon	1403-US	6978

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EXAMINER

FELTON, MICHAEL J

ART UNIT	PAPER NUMBER
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1731

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/08/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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Office Action Summary	Application No. 10/519,380	Applicant(s) AHARON, REFAEL	
	Examiner Michael J. Felton	Art Unit 1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Objections

1. Claim 5 is objected to because of the following informalities: The symbol "£" appears to not belong in this claim. Appropriate correction is required.
2. Claims 2 and 19 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.
3. Claim 2 states, "according to claim 2." A claim cannot reference itself. The Examiner assumes that the applicant intends claim 2 to refer back to claim 1. The applicant is required to cancel or amend the claim.
4. Claim 19 does not require chemical delignification, or any other delignification, and is therefore broader than claim 17, from which it depends.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
6. Claims 1-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 recites that the particles, already produced by the action of water jets, are reduced in size through screens. However, how it is

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unclear if the applicant has intended that the particles are merely separated based on size or if they are subjected to mechanical action involving screens to break apart the particles into even smaller particles (i.e. grinding). If the latter case is intended, the applicant has not disclosed how this is accomplished.

7. Claims 3, 14, 15, 19, and 31 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: how the alignment or orienting fibers is performed by passing fibers through a screen. There is no disclosure indicating that screens or gratings cause fibers to align or orient in a particular manner, or what type of alignment the fibers take on. It can only be assumed that any fiber passing through any screen would be aligned as disclosed in this application.

8. Claims 18, 20, 21, 26, 22, 23, 24. and 25 rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The microorganism based delignification that is critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). In particular, the applicant does not disclose any microorganism that could make the claimed biological delignification enabled. Several types of microorganisms have been used in the prior art, but without the disclosure of the central actor in the delignification process as claimed, of which biological delignification is an unpredictable and commercially unproven process, one of ordinary skill in the art could not practice the invention.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. Claims 1-6, 8-16, 19, and 28-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burton (US 2,611,401) and Graybeal et al. (US 2,767,170) in view of Richter (US 2,054,301). Burton discloses a the use of a jet of water to disintegrate an agricultural waste product with jets of water operating at pressures of between 600 to 1000 pounds per square inch (instant claims 1, 4, 5, 6, 8, 9; col. 1, 49-55). Burton does not disclose separating the resulting cellulosic material by size.

Graybeal et al. also disclose using water jets to disintegrate an agricultural product, in this case a slurry of cellulose. Water jets with velocities from 1000 to 5000 feet per minute are used to break up aggregates of fibers and reduce fiber size by shear

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forces and collisions with other fibers. But Graybeal et al. do not disclose screening of the resulting particles.

However, Richter discloses reducing the size of a batch or mass of cellulose fibers, forming particles of various sizes and screening them, separating them by their size through successive screens of progressively finer mesh (page 2, 10-14). After this separation, Richter discloses accumulating the particles as a cake (bale) that can be dried in any suitable manner (instant claims 3, 13, 14, 16, 19, 28, 31, 34; page 2, 28-35).

It would have been obvious to one of ordinary skill in the art at the time of invention to combine production method of Burton with the separation by size and the baling method of Richter. This combination would have allowed the separation of cellulose fibers along with longer fibers because fewer fibers would be broken down due to mechanical stress (find reference).

It would also have been obvious to vary the size of the mesh screens due to different types of feedstocks having different length cellulose fibers (instant claims 10, 11, 12, 29, 30, and 32; page 2, 10-14). In addition, it would have been obvious to vary the amount of pressure needed to make a bale or cake as described by Richter, as Richter uses water pressure to form a cake on top of a filter medium (instant claim 15, 33; page 2, 30-34). It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the parameters for forming the cake or bale to achieve a desired result. It is well-settled that optimizing a result effective variable is well within the expected ability of a person of ordinary skill in the subject art. In re

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Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980), In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1955

Furthermore, preliminary preparation of the vegetative matter as claimed in claim 2, is notoriously well know, and in both Burton and Richter the materials used (trees) have already been felled, transported and limbs removed to prepare for their use as a feedstock. Pulp and products produced using the teachings of Burton and Richter would obviously meet the instant claims 35 and 36.

12. Claims 7, 17, 18, and 20-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burton (US 2,611,401), Graybeal et al. (US 2,767,170), and Richter (US 2,054,301) in further view of Blanchette et al. (US 5,055,159). Burton and Richter, as applied to the claims above, do not disclose the use of biological delignification, and in particular delignification using microorganisms. However, Blanchette et al. disclose a biological delignification process, in which vegetative matter was placed in reactors containing water (col. 8, 50-61) and an inoculum of a particular fungus. The vegetative matter soaked in nutrient medium, inoculated, and was then held at a particular temperature, slightly above room temperature (27° C) and incubated at high humidity (Col. 11, 1-49). The mixture was stirred using humidified air. Blanchette et al. also disclose that while their invention is based on laboratory scale operation, it could be used in other types of bioreactors (col. 12, 50-55). It would have been obvious to one of ordinary skill in the art to combine the pulping methods of Burton and Richter with the delignification by microorganism disclosed by Blanchette et al. By using

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microorganisms to delignify the vegetative matter, energy consumption is reduced and lower volumes of paper processing chemicals are needed.

13. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Burton (US 2,611,401), Graybeal et al. (US 2,767,170), and Richter (US 2,054,301) in further view of Christiansen et al. (US 5,013,404). Burton, Graybeal et al., and Richter, as applied to the claims above do not disclose using stabilized hydrogen peroxide as a delignification or bleaching agent. However, Christiansen et al. disclose a stabilized hydrogen peroxide for use as a bleaching agent (abstract). It would have been obvious to one of ordinary skill in the art at the time of invention to use a stabilized hydrogen peroxide to bleach vegetative pulp, because hydrogen peroxide is a widely known bleaching agent.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Felton whose telephone number is 571-272-4805. The examiner can normally be reached on Monday to Friday, 7:30 AM to 4:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven P. Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MJF

John M. Jones
SPE, Art Unit 1731